

Climatological observations for twenty-four hours ending at 7:17 a. m. local (or 1 p. m. Greenwich) time, April, 1899.

Date.	Temperature.		Wind.		Average cloudiness.	Total rainfall.
	Maximum.	Minimum.	Prevailing direction.	Maximum force.		
1.	88	88	e.	5	10	Inches. 0.65
2.	87.5	77.5	ne.	6	6	0.00
3.	88	77.5	ne.	6	6	0.00
4.	87	76	ne.	7	5	0.00
5.	85	76	ne.	6	4	0.00
6.	88	76	ne.	6	4	0.00
7.	87	75.5	ne.	6	4	0.00
8.	88.5	76	ne.	6	4	0.00
9.	88	77	ne.	7	4	0.00
10.	87	76	ne.	6	6	0.00
11.	85	76	ne.	7	3	0.00
12.	89	74	ne.	7	3	0.00
13.	86.5	74.5	ne.	7	1	0.00
14.	88	76	ne.	7	3	0.00
15.	86.2	76	ne.	5	6	T.
16.	88.2	76	ne.	4	3	0.00
17.	87.1	76	ne.	3	1	0.00
18.	88	76	nr.	4	2	0.00
19.	89	77	ne.	4	1	0.00
20.	89	79	ne.	3	4	0.00
21.	89	79	ne.	3	3	0.00
22.	87.5	80	ne.	4	2	0.00
23.	87	81	ne.	5	3	0.00
24.	90	77	ne.	6	1	0.00
25.	88.5	78	ne.	6	4	T.
26.	89.5	78	ne.	6	1	0.00
27.	89.2	78.5	ne.	6	1	0.00
28.	90	78	ne.	6	2	0.00
29.	90.2	77	ne.	4	1	0.00
30.	88.2	77	ne.	3	2	0.00
Means.....	88.1	77.0			T. *	

*The 0.65 on April 1, was counted in for March.

First half of month abnormal. No maximum and minimum thermometers here, but make frequent observations and infer the maximum and minimum temperatures therefrom.

Simultaneous observations at 1 p. m. Greenwich (or 7:17 a. m. local) time, May, 1899.

Date.	Temperature.		Wind.		Upper clouds.		Lower Clouds.			
	Air.	Dew-point.	Direction.	Force.	Kind.	Amount.	Direction from.	Kind.	Amount.	Direction from.
1.	79	72	ne.	4	ck.	6	sw.	k.	1	ne.
2.	78	74	sw.	4	ok.	1	sw.	k.	9	sw.
3.	77.5	74	sw.	0	ok.	10	sw.	k.	1	ne.
4.	76.5	73	n.-w.	0	es.	Few	nw.	k.	Few	?
5.	78	75	s.	0				k.	10	ne.
6.	77	74	sw.	1				k.	1	ne.
7.	78	74	ne.	4				k.	3	ne.
8.	79.5	73	ne.	3				f.k.	2	ne.
9.	80.5	72	ne.	5				k.	5	ne.
10.	79.5	70	ne.	5				ak.	1	ne.
11.	80	73	ne.	4				k.	1	ne.
12.	80.5	72	ne.	6	ck.	1	sw.	k.	1	ne.
13.	80.5	72	ne.	4				k.	7	ne.
14.	81	73	ne.	5				k.	1	ne.
15.	80	73	ne.	5				Few	1	ne.
16.	80.2	73	ne.	5				k.	1	ne.
17.	79	72	ne.	4	cs.	Few	sw.	k.	Few	ne.
18.	81	76	ne.	5	cs.	Few	sw.	k.	8	ne.
19.	81	76	ne.	4				k.	8	ne.
20.	80	73	ne.	3	cs.	2	sw.	k.	Few	ne.
21.	81.5	74	ne.	5	cs.	Few	sw.	k.	1	ne.
22.	82.5	75	ne.	5				k.	5	ne.
23.	82	75	ne.	4				f.k.	5	ne.
24.	81	77	ne.	1	cs., ck.	9	nw.	k.	1	ne.
25.	81.5	77	ne.	1	cs.	2		k.	8	ne.
26.	79	74	ne.	3				k.	10	ne.
27.	78	74	ne.	4				ak.	9	ne.
28.	78	74	ne.	5				ak., k.	6	ne.
29.	77.5	71	ne.	4				k.	8	ne.
30.	76	70	ne.	3				kn.	10	ne.
31.	78	73	ne.	5				ak., k.	10	ne.
Sums.....										
Means....	79.4									

Climatological observations for twenty-four hours ending at 7:17 a. m. local (or 1 p. m. Greenwich) time, May, 1899.

Date.	Temperature.		Wind.		Average cloudiness.	Total rainfall.
	Maximum.	Minimum.	Prevailing direction.	Maximum force.		
1.	88	88	e.	5	10	Inches. 0.65
2.	87.5	77.5	ne.	6	6	0.00
3.	88	77.5	ne.	6	6	0.00
4.	87	76	ne.	7	5	0.00
5.	91	76	ne.	6	6	0.00
6.	91	76	ne.	6	6	0.00
7.	91.2	76	ne.	6	6	0.00
8.	92	76	ne.	6	6	0.00
9.	95	76	ne.	6	6	0.00
10.	97	76	ne.	6	6	0.00
11.	98.2	78	ne.	6	6	0.00
12.	98.2	78	ne.	6	6	0.00
13.	98.2	78	ne.	6	6	0.00
14.	98.2	78	ne.	6	6	0.00
15.	98.2	78	ne.	6	6	0.00
16.	98.2	78	ne.	6	6	0.00
17.	98.2	78	ne.	6	6	0.00
18.	98.2	78	ne.	6	6	0.00
19.	98.2	78	ne.	6	6	0.00
20.	98.2	78	ne.	6	6	0.00
21.	98.2	78	ne.	6	6	0.00
22.	98.2	78	ne.	6	6	0.00
23.	98.2	78	ne.	6	6	0.00
24.	98.2	78	ne.	6	6	0.00
25.	98.2	78	ne.	6	6	0.00
26.	98.2	78	ne.	6	6	0.00
27.	98.2	78	ne.	6	6	0.00
28.	98.2	78	ne.	6	6	0.00
29.	98.2	78	ne.	6	6	0.00
30.	98.2	78	ne.	6	6	0.00
31.	98.2	78	ne.	6	6	0.00
Means.....	88.1	76.4			T. *	
Means....	88.8	76.4				1.58

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of the Central Meteorologico-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the *Boletin Mensual*. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for May, 1899.

Stations.	Altitude.		Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.
	Feet.	Inch.		°F.	°F.	°F.			
Culiacán Rosales (E. d. S.)	112	29.71	98.6	58.3	62.2	42	1.17	s.	e.
Leon (Guanajuato)	5,934	24.29	92.8	52.7	74.1	38	0.70	s.	s.
Linares (N. Leon)	1,188	28.49	100.4	68.0	84.6	61	1.97	n.	ne.
Méjico (Obs. Cent.)	7,472	28.08	84.2	50.0	66.2	42	0.64	s.	s.
Morelia (Seminario)	6,401	28.98	85.5	52.5	69.8	57	2.26	e.	ene.
Oaxaca	5,164	25.08	100.6	55.0	73.9	64	3.79	s.	e.
Puebla (Col. Cat.)	7,112	28.35	89.1	50.0	68.8	64	2.26	sw.	n.
Saltillo (Col. S. Juan)	5,399	24.74	97.7	60.4	75.9	55	1.26	sw.	sw.
Silao	6,068	24.28	87.4	58.5	75.4	51	2.64	ww.	ese.
Tuxpan	19	29.96	105.8	66.6	89.7	75	0.77	sse.	ne.
Zapotlán (Seminario)	5,078	25.10	91.4	53.2	74.7	67			

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made nearly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, May, 1899.

The station is at $21^{\circ} 18' N.$, $157^{\circ} 50' W.$

Pressure is corrected for temperature and reduced to sea level, and the gravity correction, -0.06 , has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual. In which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours is now given as measured at 1 p. m. Greenwich time on the respective dates.

The rain gauge, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 48 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Tempera-ture.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:30 a. m., Honolulu time, of the respective dates. I											
				Tempera-ture.	Means.	Wind.		Total rainfall.	Average cloudi-ness.	Sea-level pressures.					
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Pervading direction.	Force.	Maximum.	Minimum.				
1.....	80.08	70	67.5	81	68	67.0	76	s-e. se-ne.	3-0	0.08	+10	30.10	30.00		
2.....	80.00	71	66.5	82	68	66.0	70	0-3 ne.	0-3	0.00	8	30.08	30.00		
3.....	80.06	73	67	83	68	65.0	71	ne.	3	0.05	6	30.08	30.00		
4.....	80.06	71	65	80	70	62.5	68	ne.	4	0.00	4-1	30.11	30.03		
5.....	80.05	72	67.5	83	71	62.7	68	ne.	8-0	0.02	2	30.10	30.01		
6.....	80.08	73	68	82	68	68.7	68	ne.	3	0.00	5-2	30.09	30.01		
7.....	80.05	73	66.5	81	71	68.0	67	ne.	3	0.06	4	30.09	30.01		
8.....	80.01	73	66	81	69	64.5	70	ne.	4	0.08	7	30.10	30.01		
9.....	29.99	73	66.5	82	72	68.0	66	ene.	4	0.03	4	30.07	29.97		
10....	30.02	73	66	81	70	64.7	70	ene-ne.	3-4	0.08	4	30.04	29.97		
11....	29.98	73	68	80	68	62.8	65	nne.	3-5	0.00	3	30.07	29.98		
12....	29.95	71	64.5	82	72	62.0	62	ne.	3-5	0.00	3	30.08	29.93		
13....	29.94	68	64	82	70	61.8	62	nne.	3	0.00	3	30.01	29.90		
14....	29.96	73	66	81	68	62.0	66	nw-ne.	3-0	0.00	4	29.98	29.90		
15....	29.97	71	66.5	82	65	62.7	66	ne.	3	0.02	4-9	30.01	29.95		
16....	29.96	71	66.5	82	71	68.7	68	ne.	4	0.18	3-7	30.01	29.95		
17....	29.97	70	67.5	80	69	64.7	71	ene.	3-0	0.30	7	30.00	29.94		
18....	29.91	67	66	74	68	68.8	68	w.	1-0	0.86	10	29.99	29.91		
19....	29.90	69	67	81	68	66.5	69	sw-w.	0-3	0.00	2-8	29.96	29.89		
20....	29.91	68	67	77	68	66.5	64	s.	2-0	0.29	10-8	29.96	29.91		
21....	29.95	71	68.5	81	68	65.8	81	se-ne.	0-4	0.01	8-10	29.98	29.91		
22....	29.97	74	68.5	84	67	66.5	68	e-ne.	1-4	0.00	5	30.03	29.95		
23....	30.01	73	66	80	78	64.5	68	ne.	5	0.04	4	30.05	29.98		
24....	30.05	74	65	80	72	62.5	65	ne.	5	0.03	5	30.09	30.01		
25....	30.03	73	65	80	73	61.0	61	ne.	5	0.00	5-10	30.11	30.03		
26....	30.03	73	68	76	72	61.7	68	ne.	4	0.17	10-8	30.09	30.02		
27....	30.05	73	65	77	71	68.3	70	ne.	5	0.20	8-3	30.11	30.02		
28....	30.03	73	68	78	71	61.7	65	ne.	4-6	0.02	5	30.09	30.03		
29....	30.05	73	68.5	80	71	61.5	63	nne.	5-4	0.00	8	30.09	30.03		
30....	30.10	73	65.5	80	72	63.7	65	nne.	5-4	0.02	6	30.14	30.05		
31....	30.08	73	65	82	71	62.7	64	ne.	4	0.00	8	30.14	30.08		
Sums.									2.44						
Means.	30.008	71.5	66.2	80.5	69.5	63.7	68.5		8.0	5.1	30.068	29.980		
Departure.	-0.004								0.0-1.0	-0.50	+0.4		

Mean temperature for May, 1899 ($6+2+9$) $\div 3 = 74.2^{\circ}$; normal is 74.2° . Mean pressure for May ($9+8$) $\div 2$ is 30.017 ; normal is 30.021 .

*This pressure is as recorded at 1 p. m., Greenwich time. +These temperatures are observed at 6 a. m., local, or 4:30 p. m., Greenwich time. \ddagger These values are the means of ($6+9+2+9$) $\div 4$. \ddagger Beaufort scale.

† Possibly this record is for 9 a. m., Honolulu time.

made with the ten years (1888-1897) mean, given in Weather Bureau Bulletin No. 22, Climate of Cuba:

TEMPERATURE.

	Monthly.	2 a. m.	4 a. m.	6 a. m.	8 a. m.	10 a. m.	Noon.	2 p. m.	4 p. m.	6 p. m.	8 p. m.	10 p. m.
Mean.....	76.1	74.0	70.0	69.6	78.4	79.5	81.2	81.1	80.8	77.9	75.2	73.8
April, 1899.....	74.0	70.2	69.5	69.1	72.6	77.5	78.6	78.5	77.7	75.9	73.9	72.9

The average for 1899 is 2.1° lower than the mean, and the average temperature at various hours is from 0.5° to 3.8° lower than the mean at the same hours.

Absolute maximum.....	93.6° in 1895.
Maximum, April, 1899.....	88.0° on the 7th.
Absolute minimum.....	52.9° in 1891.
Minimum, April, 1899.....	62.4° on the 12th.

Showing the maximum and minimum in the month to have been respectively, 5.6° lower, and 9.5° higher than the extreme recorded in the decade.

Rainfall compared with a 10-year period:

Mean.....	1.46 inch.
Total, 1899.....	.70 inch.
Greatest.....	5.67 inches in 1897.
Least.....	0.00 in 1896.
Greatest in 24 hours in April, 1899.....	.69 inch on 18th.

Number of days with rain.

Mean, 3.8; maximum, 9; minimum, 0. Total, 1899, 2; one with 0.69 inch and one with 0.01, besides which there were 4 with traces, less than 0.005.

The month of April, 1899, shows a departure from the normal of -0.76 inch, and the number of days with rain, .01 inch or more, being about 53 per cent of the average.

In the period 1859-1897, inclusive, the average monthly rainfall is 2.83 inches, and the average number of days with rain, 1863-1897, is 4.6; both amount and number of days with rain being greater than the decade 1888-1897.

For the month of April the prevailing direction of wind is east, and the average hourly velocity is 9.2 miles. April, 1899, gave a total wind movement of 8,219 miles; average velocity, 11.4 miles, and a prevailing direction of northeast, 29 per cent; east, 24 per cent, and northwest, 18 per cent. The percentage of miles was for the northeast 42 per cent; east, 12 per cent, and northwest 22 per cent. The average hourly velocity of wind, 11.4, equals the mean highest average hourly velocity, 2 p. m., as shown by Weather Bureau Bulletin No. 22.

Following is a comparison of the average hourly velocity, with the mean at various hours:

	Mean.	4 a. m.	6 a. m.	8 a. m.	10 a. m.	Noon.	2 p. m.	4 p. m.	6 p. m.	8 p. m.	10 p. m.
Mean.....	7.5	4.8	4.5	6.5	9.2	10.7	11.4	10.7	8.7	6.9	5.6
April, 1899.....	11.4	6.4	7.0	8.2	13.2	14.2	16.6	17.3	16.1	12.9	9.8

From which it appears that the April, 1899, average velocity, at the several hours, was from 1.7 miles to 7.4 miles per hour greater than the mean, and the higher average hourly velocities occurred at later hours than the higher mean. The highest average hourly velocity for April, 1899, was 17.4 miles at 3 p. m., and the lowest average hourly velocity, 6.4 miles from 2 a. m. to 5 a. m.

The following high winds occurred during the month: 6th, 28 miles ne.; 7th, 30, se.; 8th, 26 nw.; 9th, 27 nw.; 11th, 32 ne.; 12th, 30 ne.; 13th, 33 ne.; 14th, 31 ne.; 18th, 30 nw.; 23d, 30 ne.; 24th, 27 ne.

The possible sunshine for April varies from 12.4 hours on the 1st to 18 hours on the 30th. During April, 1899, the sun

The following comparisons of temperature and rainfall are